

### **REMARKS**

This submission is provided in response to the non-final Office Action mailed October 31, 2005. Claims 1-17 are currently pending and under examination.

A certified copy of the foreign priority document EP02291928.6 is provided to satisfy the requirement specified by 35 U.S.C. 119(b).

A supplemental information disclosure statement is submitted indicating references cited in the corresponding European Patent Application No. 02291928.6.

Applicants have amended the Abstract of the Disclosure. The Abstract of the Disclosure has been placed in narrative form and limited to a single paragraph with less than 150 words. Applicants believe the Abstract of the Disclosure is now in proper format.

### **Claim Rejections – 35 U.S.C. §112**

Claims 15-17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 has been amended to particularly point out and distinctly claim the amount of the additive composition in the lubricating oil composition of the present invention. This amendment finds support from original Claim 16 which has now been cancelled in view of amended Claim 15.

Accordingly, Applicants request that the rejection of Claims 15-17 under 35 U.S.C. § 112, second paragraph, be withdrawn.

### **Claim Rejections – 35 U.S.C. § 103**

Claims 1-7, 10-12, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salentine (U.S. Patent Number 4,717,490, which was cited on the PTO-1449 submitted by the applicant on July 22, 2003) in view of Kawabata et al. (U.S. Patent Number 5,173,202) and Hawley's Condensed Chemical Dictionary.

Applicants respectively must traverse the Examiner's rejection and request reconsideration in view of the following remarks.

Applicants' present invention provides a novel additive composition for a transmission oil comprising:

(a) an oil dispersion of a hydrated alkali metal borate; and

(b) an oil dispersion of hexagonal boron nitride;

wherein the weight ratio of the hydrated alkali metal borate to the hexagonal boron nitride is in the range of about 95:5 to about 5:95.

Salentine discloses a lubricating oil containing an alkali metal borate alkali metal borate-containing lubricants (Col. 1, lines 8-10). In particular, hydrated particulate alkali metal borates are disclosed having the formula  $M_{20}mB_2O_3.nH_2O$ , where M is an alkali metal including sodium and potassium, m is a number from 2.5 to 4.5 (both whole and fractional), and n is a number from 1.0 to 4.8, wherein hydrated potassium triborate microparticles are preferred (Col. 1, lines 60-68 and Col. 2, lines 1-15). The mean particle size of the hydrated borate particles is less than 1 microns (Col. 2, lines 12-15). The lubricating oil to which the borate is added is any hydrocarbon-based lubricating oil or a synthetic base oil stock (Col. 4, lines 24-32), therein intrinsically including transmission oil of a lubricating viscosity. The alkali-metal borate comprises 0.1 to 20 weight percent of the lubricant composition (Col. 4, lines 33-34). Other additives that may be added to the composition include dispersants (Col. 4, lines 53-62).

Kawabata et al. is drawn to a lubricant coating material made of ceramic particles, particularly zirconium oxide, mixed with lubricating oil. While a commercial boron nitride lubricant is used in automobile engine oil B of the Examples in Kawabata et al., there is no indication in the Examples, or the entire disclosure of Kawabata et al., that a hexagonal boron nitride was used. The Examiner cites Hawley's Condensed Chemical Dictionary as indicating that boron nitride has a "hexagonal plate structure". However, it is well known that boron nitride (BN) exists in at least four predominant forms or configurations – hexagonal (hBN), rhombohedral (rBN), cubic (cBN) and wurtzite (wBN). See, for example, Kirk-Othmer Encyclopedia of Chemical Technology, Fourth Edition, Volume Four, "Refractory Boron Compounds", pages 427-429 (Attached). While Kawabata et al. discloses that boron nitride may be used in lubricating oils to reduce friction on metal surfaces, there is no teaching or suggestion that the boron nitride is hexagonal. Thus, there is nothing in the disclosure of either Salentine or Kawabata et al. that suggests combining the teaching of the references and even if there was such motivation, the combination still does not provide the presently claimed invention.

Moreover, there is nothing in the cited references that suggests that a combination of an oil dispersion of a hydrated alkali metal borate and an oil

dispersion of hexagonal boron nitride in a specific ratio would provide a surprising and unexpected reduction in synchronizer sticking in a manual transmission gear oil. In particular, the surprising and unexpected reduction in synchronizer sticking is demonstrated in Table 1 below which is taken from the Examples of the present specification.

Table 1

Sample	No. of Cycles with Cone on Ring Sticking	Total No. of Cycles	Anti-sticking coefficient
Base oil	5000	5000	0
Comparative Composition A	8100	8100	0
Comparative Composition B	6600	6600	0
Composition 1	1200	7500	0.84
Composition 2	1600	8710	0.82
Composition 3	300	10560	0.97

Comparative Composition A contains an oil dispersion of hydrated alkali metal borate and base oil. Comparative Composition B contains an oil dispersion of hexagonal boron nitride and base oil. Compositions 1-3 contain an oil dispersion of hydrated alkali metal borate, an oil dispersion of hexagonal boron nitride and base oil.

The above data demonstrates that the additive composition of the present invention containing both the oil dispersion of hydrated alkali metal borate and oil dispersion of hexagonal boron nitride provides significant anti-sticking performance and shows a marked improvement over the comparative compositions which contain either the oil dispersion of hydrated alkali metal borate or oil dispersion of hexagonal boron nitride.

Accordingly, withdrawal of the rejection of Claims 1-7, 10-12, and 14-17 under 35 U.S.C. 103(a) as being unpatentable over Salentine in view of Kawabata et al. and Hawley's Condensed Chemical Dictionary, is respectfully requested.

Claims 8, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salentine in view of Kawabata et al. and Hawley's as applied to Claims 1-7, 10-12, and 14-17 above, and further in view of Chrisope et al. (U.S. Patent Number 5,360,562).

Applicants respectively must traverse the Examiner's rejection and request reconsideration in view of the following remarks.

First, it is noted that Applicants' arguments above apply equally as well to the instant rejection.

Moreover, Chrisope et al. teaches boron-containing ashless dispersants. However, there is nothing in Chrisope et al. that teaches or suggest either hydrated alkali metal borate or hexagonal boron nitride. Thus, the teaching of Chrisope et al. does nothing to overcome the deficiencies in Salentine, Kawabata et al. and Hawley's. Accordingly, there is nothing in the cited references that suggests the present invention as set forth in the presently recited claims.

Accordingly, withdrawal of the rejection of Claims 8, 9 and 13 under 35 U.S.C. 103(a) as being unpatentable over Salentine in view of Kawabata et al. and Hawley's as applied to Claims 1-7, 10-12, and 14-17 above, and further in view of Chrisope et al., is respectfully requested.

#### **DOUBLE PATENTING**

Claims 1-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 10-19 of copending Application No. 10/738,388, published as U.S. Pre-Grant Publication Number 2005/0119134.

In view of the Examiner's remarks, Applicants are respectfully enclosing a proper terminal disclaimer in compliance with 37 CFR 1.321(c) to obviate the provisional obviousness-type patenting rejection.

Regarding the Examiner's further remarks concerning common ownership, Applicants note that, at the time the inventions in the present application and copending application No. 10/738,388 were made, both inventions were jointly owned by Chevron Oronite S.A. and Total France and proper assignments in both applications have been filed in the U.S. Patent and Trademark Office.

### **CONCLUSION**

It is believed that in view of the foregoing remarks, the Examiner will appreciate that the Applicants have made an unexpected discovery and a distinct advance in the art which is not disclosed or suggested by the art of record.

It is therefore respectfully solicited that the Examiner allows the claims in view of this response.

Respectfully submitted,



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